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Pesticide Fact Sheet Number 105: Cryomazine

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16. Abstract (Limit: 200 words)

This document contains up-to-... chemical information, including a summary of the Agency's regulatory position and rationale, on a specific pesticide or group of pesticides. A Fact Sheet is issued after one of the following actions has occurred.

1. Issuance or reissuance of a registration standard,
2. Issuance of each special review document,
3. Registration of a significantly changed use pattern,
4. Registration of a new chemical, or
5. An immediate need for information to resolve controversial issues relating to a specific chemical or use pattern.

17. Document Analysis a. Descriptors

Pesticides, regulations, Chemical Information Fact Sheet, Use Patterns, Science Findings

b. Identifiers/Open-Ended Terms

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United States
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Office of Pesticides and Toxic Substances
Office of Pesticide Programs (TS-766C)
Washington, DC 20460

EPA

Pesticide Fact Sheet

Name of Chemical: Cyromazine
Reason for Issuance: New Chemical
Date Issued: December 1986
Fact Sheet Number: 105

1. DESCRIPTION OF CHEMICAL

Generic Name: N-cyclopropyl-1,3,5-triazine-2,4,6 triamine

Common Name: Cyromazine

Trade Name: Larvadex® Technical and Premix (poultry feed through)
Trigard® (celery and lettuce)

EPA Shaugnessy Code: # 121301

Chemical Abstracts Service (CAS) Number: 66215-27-8

Year of Initial Registration: 1984

Pesticide Type: Insect Growth Regulator

Chemical Family: Triazine

Producer (U.S. only): Ciba-Geigy Corporation

2. USE PATTERN AND FORMULATION

A. Application Site: Feed through for poultry - caged layers only. The active ingredient is passed through the chicken, leaving a residue in the manure that controls the growth of the fly larvae developing there.

Type of Formulation: Premix - a coursely ground powder

Application Rates: Mix 1 lb of Larvadex (0.3% Premix) per ton of feed for control of housefly and soldier fly; for lesser housefly, mix 3.33 lbs of Larvadex (0.3% Premix) per ton of feed.

B. Application Sites: Celery and lettuce

Type of Formulation: Wettable Powder - this product is only packaged in 2 lb. water soluble bags

Application Rates: One 2 lb. package mixed in the appropriate amount of water will treat 12 acres - this is 1/6 lb. Trigard 75W per acre.

3. SCIENCE FINDINGS

Based on calculations and environmental chemistry data, there is no expectation for unreasonable adverse effects to nontarget organisms from the proposed uses of cyromazine. Sufficient data are available to support conditional registration of cyromazine as an insect growth regulator in and around poultry houses and for use on celery and lettuce.

Chemical Characteristics of the Technical Chemical

Physical state: crystalline solid
Color: white
Odor: odorless
Boiling point: Not applicable
Melting point: 220° to 222°C
Flammability: Not applicable
Solubility in water: 1.1%

There are no unusual handling characteristics.

Toxicology Characteristics

Acute oral LD (rat); LD = 3387 mg/kg
Toxicology Category III

Acute oral LD (mouse); LD = 2029 mg/kg
Toxicology Category III

Acute oral LD (rabbit); LD = 1467 mg/kg
Toxicology Category III

Acute dermal LD (rat); LD >3100 mg/kg
Toxicology Category III

Primary dermal irritation (rabbit); PIS = 1.1/8.0
Toxicology Category IV

Primary eye irritation (rabbit); Negative
Toxicology Category IV

Skin Sensitization (guinea pig): nonsensitizing
Toxicology Category: N/A

Mutagenic (Salmonella); Negative for point mutations in TA1535, TA1537, TA98, TA100 with and without activation

90-Day feeding (dog): NOEL = 300 ppm: LEL = 1000 ppm; levels tested = 0, 30, 300, and 3000 ppm.

6 months feeding (dog); NOEL = 30 ppm; LEL = 300 ppm; levels tested = 30, 300 and 300 ppm.

Teratology (rat); Negative for teratogenic effects up to and including 1000 mg/kg/day.

Teratology (rabbit); NOEL for teratogenic effects at 5 mg/kg/day; Maternal NOEL at 10 mg/kg/day.

2-Generation reproduction: Systemic NOEL = 30 ppm; systemic LEL = 1000 ppm; levels tested = 0, 30, 1000 and 3000 ppm.

2-Year feeding/Oncogenicity (rat); NOEL = 30 ppm; LEL = 300 ppm; negative for oncogenic effects at 3000 ppm (HDT).

Mutagenic (dominant and nucleus): negative

Physiological and Biochemical Behavioral Characteristics

Mechanism of pesticidal action: Cyromazine is not a cholinesterase inhibitor. As an insect growth regulator, cyromazine exerts its toxic action by affecting the nervous system of the immature stages (larvae) of certain insects.

Environmental Characteristics

Cyromazine is practically nontoxic (acutely) to mammals and birds. Exposure estimates for these organisms are <0.05 ppm. Acute toxicity for birds is 1785 ppm maximum. Safety factor is 10^5-10^6 for birds. Acute toxicity for mammals is 1000 ppm maximum. Safety factor is again 10^5 - 10^6. A summary of the environmental chemistry factors to be considered in this hazard assessment indicates that:

- Cyromazine is stable to hydrolysis; photolysis is the dominant physico-chemical degradation mechanism.
- Cyromazine is not expected to build up in soils; at 5 ppm in chicken manure (5 tons/A) <0.05 ppm cyromazine is expected in soils. Half lives in soil-manure are 1 year (lab) and 12 weeks (field/greenhouse).
- Cyromazine is not expected to build up in plants or crops; <0.05 ppm is expected from typical chicken manure applications.
- Cyromazine is not expected to build up in animal tissues; fish bioconcentration factors are expected to be between 0.2-7.8X.
- Cyromazine has no detrimental effects on soil microorganisms.
- Cyromazine has a low to moderate mobility in sandy or loam sand soils.

Ecological Characteristics:

Avian Acute Oral LD_{50}

Species	LD_{50}
Mallard duck	>2510 mg/kg
Bobwhite quail	1785 (1444-2206) mg/kg
Peking duck	>6000 mg/kg

Avian Dietary LC_{50}

Species	LD_{50}
Mallard duck	>5620 ppm
Bobwhite quail	>5620 ppm

Fish Acute LC_{50} (96-hr)

Species	96 hr LC_{50}
Bluegill sunfish	>89.7 mg/l
Rainbow trout	>87.9 mg/l
Channel catfish	>92.4 mg/l

Aquatic Invertebrate LC_{50}

Species	48 hr LC_{50}
Daphnia magna	>97.8 mg/l

Summary of Tolerances 40 CFR §180.414

Commodities	Parts Per Million
Eggs	0.25
Meat of Poultry	0.05
Fat of Poultry	0.05
Meat by-products of Poultry	0.05
Poultry feed (see 21 CFR)	5.0
Celery	10.0
Lettuce	5.0

4. SUMMARY OF REGULATORY POSITION

Use classification: N/A

Use, formulation or geographical restrictions: Larvadex has been approved for use in poultry feed for caged layers as a a feed through pesticide to control flies in the manure. Trigard has been approved for use on celery and lettuce as a conventional spray on emulsion to control leafminers. Products containing cyromazine are to be stored in cool, dry places. There are no geographical restrictions or unique warning statments required on the label.

5. SUMMARY OF MAJOR DATA GAPS

Toxicology: None

Environmental Fate: Applicator Exposure Study

Environmental Safety: None

Residue Chemistry: None

6. CONTACT PERSON AT EPA

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